# Effect of designed self-care educational program on anxiety, stress, and depression in patients with benign prostatic hyperplasia undergoing prostate surgery

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## Abstract

**Original Article**

**BACKGROUND:** Stress, anxiety, and depression are common psychological problems in prostatic conditions. The aim of this study was to investigate the effects of designed self-care educational program on anxiety, stress, and depression in patients with benign prostatic hyperplasia undergoing prostate surgery.

**METHODS:** This was a quasi-experimental study including 33 participants in the intervention group and 34 participants in the control group. During the study demographic data and the rate of stress, anxiety, and depression were measured. In the intervention group, self-care educational program was presented in two sessions and was followed up one month after surgery. Stress, anxiety, and depression were measured before surgery, and during and one month after discharge using depression anxiety stress scales (DASS-21), which is a standard questionnaire. Later data were analyzed using SPSS software.

**RESULTS:** Participants in the study were between 45-80 years of age. Student's independent t-test before the intervention revealed no significant difference in mean score of stress ($P = 0.684$), anxiety ($P = 0.937$), and depression ($P = 0.727$) between the two groups. Mean score of stress and anxiety significantly reduced in the intervention group on discharge (stress: $P = 0.031$, anxiety: $P = 0.043$), and a month after the operation (stress: $P \leq 0.001$, anxiety: $P = 0.016$). However, mean score of depression revealed no significant difference on discharge ($P = 0.514$), and a month after operation ($P = 0.221$).

**CONCLUSION:** The results showed that designed self-care educational program was effective in stress and anxiety reduction in patients under prostate surgery.

**KEYWORDS:** Self-Care, Stress, Anxiety, Depression, Benign Prostatic Hyperplasia

## Introduction

Benign prostatic hyperplasia (BPH) is a common medical condition among middle-aged and older males, affecting 40%–50% of men by age 50 and nearly 80% of men by age 70.[1] The increase in life-expectancy that has been observed over the last 50 years has resulted in the ageing of the global population. It is expected that the world population aged over 65 years will double between 1980 and 2050, and this will increase the prevalence of the disease.[2] The prevalence increased from 1.2% in adults aged 40–49 years to 36% in those aged 70 years.[3]

BPH is not a life-threatening condition.[4] However, male patients suffer from stress, anxiety, and depression due to social disruption, and

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inability to perform essential tasks due to psychological impact, sexual dysfunction, fear of cancer, and fear of surgery.[5-8] On the other hand, transurethral resection of the prostate (TURP) like any other surgery is a stressful condition, and studies show that most of the patients have anxiety before the operation.[9] Thus, BPH can cause depression, anxiety, and psychological disease resulting in poor quality of life and unhealthy ageing.[6-8] Due to increasing age of BPH patients and their vulnerability to disease and its psychological problems, decreasing anxiety level is one of the main nursing cares to prevent further ailment. According to Dorothea Orem (1995) self-care agency suggests that individuals use their resources, including knowledge, attitude, skills and personal values. Therefore, self-care ability increases through research, education, and learning process.[10] Accordingly, self-care education by nursing staff increases self-care by the patients and helps them adapt to the physical and mental health issues caused by the disease.[11,12] In Iran many studies have been conducted on patients' mental issues and several other diseases, nevertheless there are a limited number of studies conducted on the effect of self-care education on psychological problems of BPH patients undergoing prostate surgery. Therefore, the researcher aims to study the effects of a designed self-care educational program on anxiety, stress, and depression in patients with benign prostatic hyperplasia undergoing prostate surgery.

## Materials and Methods

This is a clinical trial, registered in the Iranian Registry of Clinical Trials (IRCT2012070610196N1) and conducted in Milad Hospital in Tehran, Iran, using control and intervention groups. The subjects were patients suffering form BPH and candidates for TURP surgery admitted to Milad Hospital in Tehran from April 4th 2011 to August 21st 2011. The inclusion criteria of this study were: age ranges between 48-80 years, ability to read and write, no prior training, no prior information about the disease or its treatment and methods of reducing stress, and no evidence of anxiety and depression in a period of 6 month

prior to intervention. Other criteria were willingness to participate in the study and absence of neurological disorders.

The exclusion criteria included: various stressful life events, history of treatment during the period of intervention, unwillingness to participate in the study, and positive results showing prostate cancer after tissue sampling.

Sample size was obtained using Pocock's formula and statistical tables of Quekand based on similar studies with confidence level of 95% and margin of error of 5%.[13,14] The sample size of 29 people per group was considered, but due to possible dropout rates the sample size of each group was raised to 35 people. After the study was approved, the researcher chose samples based on the study criteria. To reduce seasonal effects on dependant variables (stress, anxiety, and depression), the samples in both control and intervention groups were assigned to the groups 10 samples at a time. Initially, 10 patients in the control group were selected, and after completion the research and research tools by patients, and after their discharge from the hospital the next 10 people in the intervention group were chosen and the experiment was conducted on them. This process continued until all subjects in both groups were chosen and participated in the study (The whole process of the study is summarized in figure 1).

Research instruments for this study were demographic check lists, depression anxiety stress scales (DASS-21) questionnaire, and survey sheets to determine training requirements in terms of general anxiety, stress, and depression of the patients. With the exception of this questionnaire, other questionnaires were developed by the researcher, in which case content validity was determined subsequent to gaining expert opinion. Then, the tools were developed using different sources, including comments of 10 nursing professionals and 3 urologists. Later, after comments and suggestions, corrections were applied. DASS-21 is a shortened version of the questionnaire DASS 42 which was presented
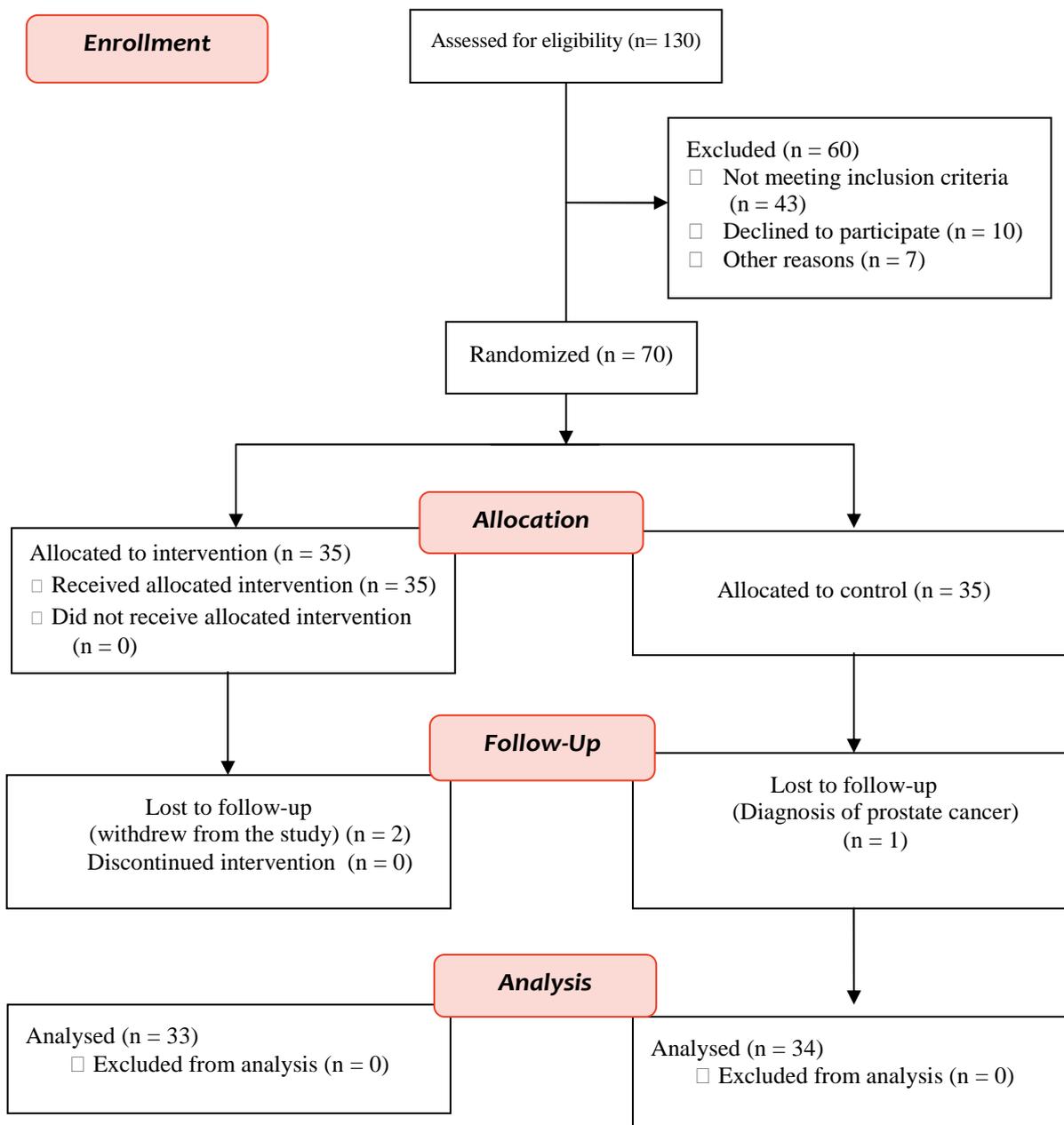
**Figure 1. The consort flowchart of the study**

for the first time by Lovibond in 1995.[15] Queries in the questionnaire are based on a grading scale scored 0 to 3. In this device 21 queries are used to assess stress, anxiety, and depression levels, each one constituting 7 queries, respectively. Likert scaling assumes the following options in the questionnaire: unlikely, low probability, average probability, and high probability. The lowest score is zero and the highest score is 3.[16]

The validity of the questionnaire has been confirmed by studies done in the home country or abroad.[16-19] The reliability of the instrument was determined by internal homogeneity and Cronbach's alpha coefficient. The questionnaires were completed by 10 patients suffering from BPH and under TURP surgery. The questionnaire was validated with Cronbach's alpha resulting in 0.78 in stress, 0.74 in anxiety,

and 0.83 in depression sections. Reliability was assessed using the test-retest method.[16,19]

This questionnaire was completed before the intervention, during discharge, and one month after it by the study samples in both groups, bearing in mind that patients in the control group received no intervention. Regarding research ethics, after completion of the study, educational pamphlets discussed in the intervention group were sent to the samples. The researcher designed the self-care educational program by using books, articles, urology specialists, and nursing professionals (including educational pamphlets and animation files about the disease). After determining the educational needs of patients and at the time of admission, the researcher delivered the package to the patients in the intervention group.

Content of the training program consisted of two educational sessions before and after the operation (average one hour). First session included learning about the nature of the disease, preoperative education, nature of operation, postoperative results, pre-and postoperative routines, and training on diet, patient movement, oral health, and fluid intake after surgery. The second session included training on discharge in areas like nutrition and diet at home, genital hygiene and prevention of infection in the genitourinary system, mobility, sexual activity timing, fluid intake to prevent constipation, medication, and sitting on a tub of warm water on a daily basis and during acute urinary irritation and obstruction. In addition, they utilized appropriate teaching aids, like educational pamphlets and display of animation files using a laptop. After the second session, DASS 21 questionnaires were completed by the patients for a second time; the questionnaire was put into envelopes and delivered to the patients one month after it was completed for the first time and submitted to the researcher. They received training in self-care at home, within a month after the operation samples were called, and the importance of the training was emphasized and reminded to them. Then patients'

questions were answered at the same time, bearing in mind that patients in the control group did not receive these trainings. Finally, the data were analyzed using SPSS for Windows (version 16, SPSS Inc., Chicago, IL., USA), independent t-test (for comparison of stress variables, anxiety, and depression between the two groups) chi-square, and Fisher's exact test. Differences were considered significance if $P \leq 0.05$.

## Results

Due to the potential dropout rate of participants, number of subjects for both intervention and control groups was considered to be 35 patients. By the end of study, 3 people withdrew from the study, 2 people from the intervention group quit the study and 1 withdrew due to prostate cancer; the study was conducted on 67 people. Demographic data samples are given in table 1. Since variables under study can have an influence on anxiety, stress, and depression of the patients, they were distributed into two groups using chi-square for qualitative variables and Student's t-test for quantitative data. Results showed that both groups had no significant difference in terms of demographic variables such as age, marital status, education, occupation, income, duration of disease, and living with family members. Student's independent t-test showed no significant difference between mean standard deviation of stress ($P = 0.684$), anxiety ($P = 0.938$) and depression ($P = 0.727$) scores in the two groups before the intervention. The difference in anxiety and stress scores at the time of discharge (stress: $P = 0.031$, anxiety: $P = 0.043$) and one month after surgery (stress: $P \leq 0.001$, anxiety: $P = 0.016$), were significant between the two groups. There was a decrease in anxiety and stress levels in the intervention group compared to control group. However, the intervention group showed a decrease in depression, but caused no significant difference between groups during discharge and one month after surgery.

Repeated measures ANOVA showed that although depression score was not significant ($P = 0.082$), there was a significant difference in

the mean stress (P ≤ 0.001), and anxiety (P ≤ 0.001) scores before and after the intervention in the intervention group. However, those in the control group showed no significant change (stress: P = 0.454, anxiety: P = 0.179, and depression: P = 0.082) (Table 2).

This test also showed a significant difference in mean stress and anxiety levels at three different times between experimental and control groups (stress: P = 0.012 and anxiety: P = 0.047).

The results indicate that the intervention group, who used the self-care education program, showed a statistically significant reduction in stress and anxiety scores.

**Table 1. Demographic characteristics of the two groups**

| Variables | | Intervention | | Control | | P |
|---|---|---|---|---|---|---|
| | | No. | Percentage | No. | Percentage | |
| Age | 51-60 | 10 | 30.30 | 9 | 26.47 | |
| | 61-70 | 14 | 42.42 | 13 | 38.23 | 0.777 |
| | 71-80 | 9 | 27.30 | 12 | 35.30 | |
| Marital status | Married | 33 | 100 | 31 | 91.18 | |
| | Single | 0 | 0 | 3 | 8.82 | 0.239 |
| Living with family members | With spouse and children | 33 | 100 | 33 | 97.05 | |
| | Alone | 0 | 0 | 1 | 2.94 | 1.000 |
| Education | Under High School Diploma | 25 | 75.75 | 26 | 76.47 | |
| | High School Diploma and above | 8 | 24.24 | 8 | 23.53 | 0.318 |
| Occupation | Retired | 23 | 69.69 | 25 | 73.52 | |
| | Employed | 10 | 30.30 | 9 | 26.47 | 0.783 |
| Income | Sufficient | 23 | 69.69 | 19 | 55.88 | |
| | Not sufficient | 10 | 30.30 | 15 | 44.11 | 0.791 |
| Duration of disease (months) | Three months or less | 6 | 18.18 | 3 | 8.23 | |
| | Four months or more | 27 | 81.81 | 31 | 91.17 | 0.305 |

**Table 2. Mean differences in stress, anxiety, and depression in intervention and control groups at three different times**

| Variables | Time | Group | Mean ± SD | P | P (Repeated measurement test) | | |
|---|---|---|---|---|---|---|---|
| | | | | | Intervention | Control | Within group |
| Stress | Before intervention | Intervention | 8.21 ± 4.87 | 0.684 | | | |
| | | Control | 7.71 ± 5.23 | | | | |
| | On discharge | Intervention | 4.42 ± 3.28 | 0.031 | ≤ 0.001 | 0.454 | 0.012 |
| | | Control | 6.97 ± 5.80 | | | | |
| | A month after operation | Intervention | 3.17 ± 3.64 | ≤ 0.001 | | | |
| | | Control | 7.74 ± 5.62 | | | | |
| Anxiety | Before intervention | Intervention | 5.18 ± 4.43 | 0.937 | | | |
| | | Control | 5.26 ± 4.23 | | | | |
| | On discharge | Intervention | 3.55 ± 3.97 | 0.043 | ≤ 0.001 | 0.179 | 0.047 |
| | | Control | 5.65 ± 4.23 | | | | |
| | A month after operation | Intervention | 2.52 ± 3.88 | 0.016 | | | |
| | | Control | 3.99 ± 4.76 | | | | |
| Depression | Before intervention | Intervention | 5.88 ± 4.36 | 0.727 | | | |
| | | Control | 5.50 ± 4.48 | | | | |
| | On discharge | Intervention | 4.24 ± 4.008 | 0.514 | 0.082 | 0.552 | 0.442 |
| | | Control | 4.94 ± 4.67 | | | | |
| | A month after operation | Intervention | 3.15 ± 3.70 | 0.221 | | | |
| | | Control | 4.59 ± 5.62 | | | | |

## Discussion

In this study, the designed self-care educational program caused a significant reduction in stress and anxiety levels during discharge and one month after surgery in the intervention group compared to the control group. This suggests the impact of self-care education program in the mentioned group. The reason for the significant decrease in anxiety and stress in the intervention group could be due providing patients with information about the nature of the disease and surgery, and regarding self-care in the hospital and at home in the form of a designed self-care program. Generally, surgical procedures have a negative impact on the patient's ability to follow self-care programs.[20] Moreover, BPH patients have concerns about success rate of the treatment, and other concerns, especially fear of surgery and fear of prostate cancer.[9,21] Regarding anxiety as a variable, the results of the present study is similar to the results of studies done by Callaghan et al., and Zhang and Xiaoyu.[22,23]

The results of studies done by Callaghan et al. showed that preoperative data, presented in the form of educational pamphlets, decreased anxiety in patients undergoing TURP surgery.[22] The study done by Zhang and Xiaoyu showed that teaching patients with BPH reduces patients' preoperational anxiety.[23] However, the studies done by Larsson et al. and Asilioglu and Celik showed that patient education has not been effective in reducing anxiety.[24,25] In the current study, designed self-care education program decreased anxiety levels in theintervention group. However, this reduction was not enough to cause significant differences between the two groups on discharge and one month after the operation. Contrary to what was found in the present study, the study by Sun et al., titled "Influence of cognitive psychology nursing on preoperative anxiety and depression of patients with benign prostatic hyperplasia", showed that mean difference of depression between the intervention and control groups were significant.[21] In this study, in addition to

patient education about TURP surgery and self-care education, psychological interventions, such as emotion regulation, were conducted through social support, such as friends and family members, which had a positive impact on reducing depression.

One reason for the insignificant decrease in the intervention group compared to the control group was the lack of supplementary intervention in the designed self-care program. It can also be due to several factors such as annoying disease symptoms, surgical complications resulting in sexual dysfunction, such as erectile problems, after TURP surgery, and after patient discharge from the hospital, which may be weeks or months after the operation.[6,19,26-30] Another issue was sleep disruption, which had a direct effect on depression.[31] Our patients in the present study would agree that the above mentioned statements reflect their own ideas. Given the fact that depression was declining in the intervention group during the one month follow-up after surgery, it seems that by increasing the duration of follow-up better outcomes, with the aim of lowering the level of depression, can be achieved. Limitations of this study included items that were out of the control of the researcher, such as patients' mood during training sessions, individual differences in their learning, training presentations, patients' personality types and characteristics, their sense of responsibility towards their health, and urologists' differences based on their skills in TURP surgery (which could influence the treatment outcomes).

The results of this study showed that a designed educational program on self-care significantly reduces stress and anxiety levels of BPH patients under TURP surgery. Thus, in order to improve the health and quality of life of patients suffering from BPH and those under TURP surgery, patients' education on self-care, and nurses and health workers' participation in routine follow-ups are essential. Therefore, implementation of the program to observe its

impact on the quality of life of BPH and prostate surgical patients, and its effects on psychological symptoms in patients with prostate cancer is recommended.

## Conflict of Interests

Authors have no conflict of interests.

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